

REMARKS

The above amendments to the specification, claims and abstract have been made to place the application in proper U.S. format and to conform with proper grammatical and idiomatic English. None of the amendments herein are made for reasons related to patentability. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made"**.

In the event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 449122002200. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

For the convenience of the Examiner, the changes made are shown below with deleted text in strikethrough and added text in underline.

In the Specification:

Page 1 before the first paragraph, has been amended to include the following insert:

This application claims priority to International Application No. PCT/DE99/02935 which was published in the German language on March 30, 2000.

Page 1, between lines 4 and 5 has been amended to include the following heading:

TECHNICAL FIELD OF THE INVENTION.

Paragraph beginning on line 7 of page 1 has been amended as follows:

The invention relates to a method of exchanging information and, in particular, to a method of ~~for~~ exchanging signaling information for at least one call connection, which can be switched via a packet-switched network, between subscribers of a circuit-switched network, according to the preamble of claim 1.

Page 1, between lines 6 and 7 has been amended to include the following heading:

BACKGROUND OF THE INVENTION.

Paragraph beginning on line 12 of page 1 has been amended as follows:

Accordingly, A network constellation as ~~known~~, known as, for example, ~~from a customer brochure~~ "EWSD goes Internet" by Siemens AG, Hofmannstr. 51, D-81359 Munich, published in 1997 under item number A50001-N2-P65-2-7600, figure on page 7, is used as a basis.

Paragraph beginning on line 18 of page 1 has been amended as follows:

Accordingly, A circuit-switched network includes ~~contains~~ at least one digital originating exchange (local exchange 2) and at least one digital destination exchange (local exchange 1) which are in each case connected directly or indirectly via at least one digital transit exchange to an access node (POP) or in which the functions of such an access node are integrated. Such access nodes enable the originating, destination and/or transit exchanges to be connected to a packet-switched network, for example to the Internet. Subscribers of the circuit-switched network, the terminal facilities of which are connected to a digital exchange (originating or destination exchange, respectively) can thus set up a call connection to another subscriber of the circuit-switched network via the packed-switched network, for example by means of Voice over IP.

Paragraph beginning on line 35 of page 1 has been amended as follows:

The advantage of Voice-over-IP telephony mainly lies in that, by compressing the voice into data packets, approximately eight or more Voice-over-IP call connections can now be simultaneously transmitted via one useful channel for a call connection of the conventional circuit-switched network with a transmission rate of, for example, 64 kbit/s. This reduces the costs ~~to be borne by~~ of a network operator so that the network operator can offer favorable telephone charges to the subscribers using a Voice-over-IP call connection. On the other hand, the subscribers to the Voice-over-IP call connections have to accept a reduced voice quality compared with the conventional circuit-switched call connection.

Paragraph beginning on line 5 of page 3 has been amended as follows:

This procedure represents a disadvantageous solution because the aforementioned VOI functions must be developed in addition ~~additionally~~ to the signaling, billing and traffic control functions already present in a digital originating, destination or transit exchange within such an access node. This solution thus requires intensive development, is expensive and requires dual maintenance. In addition, there is at present no standardized signaling method of VOI call connections which is binding for all network operators.

On page 3, between lines 14 and 15 please insert the following paragraphs:

--SUMMARY OF THE INVENTION

In one embodiment of the invention, there is a method for exchanging signaling information for at least one call connection, which can be switched via a packet-switched network, between subscribers of a circuit-switched network. The method includes, for example, a digital originating exchange and a digital destination exchange which are coupled via a digital transit exchange to an access node which forms an access to the packet-switched network for the circuit-switched network, in which the signaling and useful information belonging to the call connection can be transmitted via the packet-switched network between such access node in the form of data packets, wherein the signaling information is exchanged between the originating and destination exchanges, instead of via the packet-switched network, via a signaling network coupled to the circuit-switched network.

In one aspect of the invention, the useful information to be transmitted via the packet-switched network, and its associated signaling information to be conducted via the signaling network, are provided with a common, unambiguous identification number.

In another aspect of the invention, the billing method of the circuit-switched network is applied to the call connection established via the packet-switched network by means of the signaling information conducted via the signaling network.

In still another aspect of the invention, a direct connection exists between the access node belonging to the originating exchange and another access node belonging to the destination exchange or between the originating exchange and the destination exchange, in which the functions of the access node are integrated, a traffic control function present in the originating or transit exchange is applied to the traffic control function of the useful information, belonging to the call connection, in the form of data packets and the signaling information to be transmitted via the signaling network.

In yet another aspect of the invention, the digital destination exchange is coupled to a device functioning as an access node instead of the access node.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a network constellation according to the invention.

DETAILED DESCRIPTION OF THE INVENTION--

Page 3, lines 15-22 has been amended as follows:

~~It is, therefore, the object of the invention to develop a method of the type specified in the preamble of claim 1 to such an extent that the aforementioned disadvantages are eliminated.~~

~~This object is achieved by the features specified in the characterizing clause of claim 1. Further developments of the invention are characterized in the subclaims.~~

Paragraph beginning on line 23 of page 3 has been amended as follows:

~~The principle of the~~ The invention consists in that the relates to signaling information belonging to a call connection (e.g. VOI) to be transmitted via ~~the~~ a packet-switched network. The signaling information is exchanged ~~, instead of via the packet-switched network, instead of~~ via the packet-switched network, via a signaling network, which is connected to the conventional

circuit-switched network, between an originating and destination exchange of the circuit-switched network.

Paragraph beginning on line 31 of page 3 has been amended as follows:

~~This is made possible by the circumstance that the~~ The signaling function for setting up and clearing down a connection, and for implementing telephone services (e.g. automatic call back), are already implemented in the digital exchanges, ~~that is to say i.e.~~ in the originating, destination and transit exchanges. In addition, the conventional circuit-switched network has a standardized independent signaling network, preferably CCS7. According to the invention, the signaling network available for the circuit-switched network is advantageously utilized for exchanging signaling information with respect to the call connections to be transmitted via the packet-switched network.

Paragraph beginning on line 11 of page 4 has been amended as follows:

~~This dispenses with any~~ Using their technique, expensive development of a special signaling function for call connections via the packet-switched network, for example via the Internet, are dispensed. Furthermore, the signaling function in an exchange of a circuit-switched network is already standardized so that signaling information can be exchanged between exchanges of different network operators or manufacturers.

Paragraph beginning on line 19 of page 4 has been amended as follows:

An additional advantage of the invention ~~is can be seen in the fact~~ that the traffic of signaling information, which normally puts a great load on the packet-switched network, is shifted to the signaling network connected to the circuit-switched network and, as a result, the packet-switched network is relieved of the load.

Paragraph beginning on line 26 of page 4 has been amended as follows:

~~According to an advantageous development of the invention, the~~ The useful information to be transmitted via the packet-switched network, and its associated signaling functions to be conducted via the signaling network, are provided with a common, unambiguous identification number. As a result, signaling information transmitted via the signaling network can be associated in a simple manner in the exchange with the useful information transmitted via the packet-switched network.

Paragraph beginning on line 1 of page 5 has been amended as follows:

~~A further advantageous embodiment of the invention provides that, by~~ By means of such signaling information conducted via the signaling network, the billing method of the circuit-switched network can also be applied to such a call connection established via the packet-switched network. In this manner, the charging for call connections via the circuit-switched network and for such call connections set up via the packet-switched network can be unified and the administrative expenditure can thus be reduced. In addition, the billing method of the circuit-switched network has a high degree of security (e.g. the prevention of charge losses) which automatically also applies in the billing of call connections via the packet-switched network according to the present embodiment according to the invention.

Paragraph beginning on line 17 of page 5 has been amended as follows:

~~An advantageous further development of the~~ The invention is also advantageous when ~~relates to the case where~~ there is a direct connection between the access nodes belonging to an originating exchange and a further access node belonging to a destination exchange or, alternatively, between the originating exchange and the destination exchange, in which the functions of such an access node are integrated: (i.e., the data packets of a call connection to be transmitted via the packet-switched network are transmitted between two exchanges without

intermediate nodes within the packet-switched network). ~~With this assumption,~~ In this case, the traffic control function present in the originating exchange can also be used for traffic control of the useful information, belonging to a call connection, in the form of data packets and the signaling information to be transmitted via the signaling network.

Paragraph beginning on lines 34-36 of page 5 has been amended as follows:

~~In the text which follows, an exemplary embodiment of the invention is described in greater detail with reference to a drawing.~~

Paragraph beginning on line 1 of page 6 has been amended as follows:

~~The figure shows a network constellation to which the method according to the invention can be applied.~~

Paragraph beginning on line 4 of page 6 has been amended as follows:

Terminal facilities A-TIn, for example a telephone set of a subscriber of a circuit-switched network, are connected to a digital exchange VST1 hereinafter referred to as an ~~which will be called~~ originating exchange, ~~in the text which follows.~~ In the originating exchange, switching functions VT1 such as, e.g. signaling, billing and traffic control are implemented. Furthermore, a so-called interworking unit IWU1 is integrated in the originating exchange, in which voice is converted into voice in the form of data packets of variable or fixed lengths via a useful channel of the conventional circuit-switched network with a transmission rate of, for example, 64 kbit/s.

Paragraph beginning on line 17 of page 6 has been amended as follows:

This correspondingly applies to a digital exchange VST2, hereinafter referred to as a ~~which is called~~ destination exchange, ~~in the text which follows.~~ The terminal facilities, connected to the exchange VST2, of another subscriber of the circuit-switched network are

identified by B-TLN and the switching functions implemented in the VST2 are identified by VT2 and the interworking unit is identified by IWU2.

Paragraph beginning on line 25 of page 6 has been amended as follows:

Between the originating exchange VST1 and the destination exchange VST2, a number of connections are indicated. On the one hand, the originating and destination exchange are connected via a signaling network SN (e.g. CCS7). On the other hand, a number of useful channels or lines for useful information, e.g. p1, p2 and p3 originate at the originating exchange. In ~~the figure~~ Figure 1, the useful channel or, respectively, the line p1 lead into a packet-switched network IN, for example the Internet or an ATM (Asynchronous Transfer Mode) network which is indicated in the form of a cloud and nodes contained therein, e.g. in the form of network computers, with the aid of interconnected circles, and leads from there to the destination exchange VST2. The useful channel or line designated by p2 represents a direction connection between the originating exchange and the destination exchange. A connection can be established to the destination exchange with the aid of the useful channel or the line p3 via a further digital exchange VST3 which handles the tasks of a transit exchange. A transit exchange normally has no subscriber lines and is connected between two exchanges having subscriber lines. In addition, the transit exchange is connected to the signaling network.

Paragraph beginning on line 14 of page 7 has been amended as follows:

Assuming ~~an~~ A party A wishes to set up a packet-switched call connection, e.g. Voice over IP or voice over ATM, with his terminal facility, e.g. A-TIn, to ~~a~~ B party B with the terminal facility e.g. B-TIn.

Paragraph beginning on line 18 of page 7 has been amended as follows:

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To initialize a call setup, ~~the A~~ party A uses a terminal facility, e.g. A-TIn, to trigger a loop closure and dials the number (e.g. E.164) of ~~the B~~ party B. The signaling function implemented in the switching functions VT1 then transmits signaling information, e.g. in CCS7 format, with respect to the call setup request via the signaling network in the direction of the destination exchange addressed with the dialed number, e.g. VST2. The signaling information belonging to the desired call connection is provided with an unambiguous identification number which is preferably entered in the data section of the signaling information present, for example, in CCS7 format. The destination exchange sends a ring tone to a terminal facility, for example B-TIn of ~~the B~~ party B. ~~The B party~~ Party B accepts the call. The destination exchange VST2 is informed of this and the signaling function implemented in the switching functions VT2 sends corresponding signaling information back to the originating exchange via the signaling network.

Paragraph beginning on line 8 of page 8 has been amended as follows:

In the simplest case, the traffic control function implemented in the switching function selects the useful channel or, respectively line e.g. p2, which leads directly to the destination exchange VST2 via the interworking unit IWU1, by means of the dialed number. The interworking unit is responsible for the conversion of voice via a useful channel of the circuit-switched network with a transmission rate of, for example, 64 kbit/s into voice in the form of data packets. Furthermore, these data packets are provided with the same identification number as their associated signaled information in order to ensure correct correlation between the signaling information and the useful information transmitted via useful channels or lines. The voice which has arrived at the destination exchange in the form of data packets, is converted back into voice via a useful channel of the circuit-switched network by means of the interworking unit IWU2 and transmitted in the direction of the terminal facility of ~~the B~~ party B with the aid of the switching function VT2.

On page 10, line 1, please replace "Patent Claims" with --WHAT IS CLAIMED IS--.

In the Claims:

1. (Amended) A method for exchanging signaling information for at least one call connection, which can be switched via a packet-switched network, between subscribers of a circuit-switched network, comprising;

~~a which contains at least one~~ digital originating exchange (VST1) and ~~at least one a~~ digital destination exchange (VST2) which are ~~in each case connected directly or indirectly via at least one~~ coupled via a digital transit exchange (VST3) to an access node ~~or in which the functions of such an access node are integrated,~~ which forms an access to the packet-switched network for the circuit-switched network, in which the signaling and useful information belonging to ~~at least one such~~ the call connection can be transmitted via the packet-switched network between such access nodes in the form of data packets,

~~characterized in that~~ wherein the ~~such~~ signaling information is exchanged between ~~such~~ an ~~the~~ originating and destination exchanges, instead of via the packet-switched network, via a signaling network (SN) ~~connected~~ coupled to the circuit-switched network.

2. (Amended) The method ~~as claimed in~~ according to claim 1, ~~characterized in that~~ wherein the useful information to be transmitted via the packet-switched network, and its associated signaling information to be conducted via the signaling network, are provided with a common, unambiguous identification number.

3. (Amended) The method according to claim 1, wherein ~~as claimed in one of the preceding claims,~~ ~~characterized in that~~ the billing method of the circuit-switched network is

applied to ~~such a~~ the call connection established via the packet-switched network by means of ~~such~~ the signaling information conducted via a the signaling network (SN).

4. (Amended) The method according to claim 1, wherein ~~as claimed in one of the preceding claims, characterized in that, assuming that~~ a direct connection (p2) exists between the access nodes belonging to the ~~an~~ originating exchange (VST1) and ~~a further~~ another access node belonging to the ~~a~~ destination exchange (VST2) or between the originating exchange and the destination exchange, in which the functions of the ~~such an~~ access node are integrated, ~~the~~ a traffic control function present in ~~an~~ the originating or transit exchange is applied to the traffic control function of the useful information, belonging to a the call connection, in the form of data packets and the signaling information to be transmitted via the signaling network.

Please add the following new claim:

5. The method according to claim 1, wherein the digital destination exchange is coupled to a device functioning as an access node instead of the access node.

In the Abstract:

Please replace the Abstract in its entirety with the Abstract attached hereto.